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ANDREW VAUGHAN

Environmental Education

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ENVIRONMENT VIEWS

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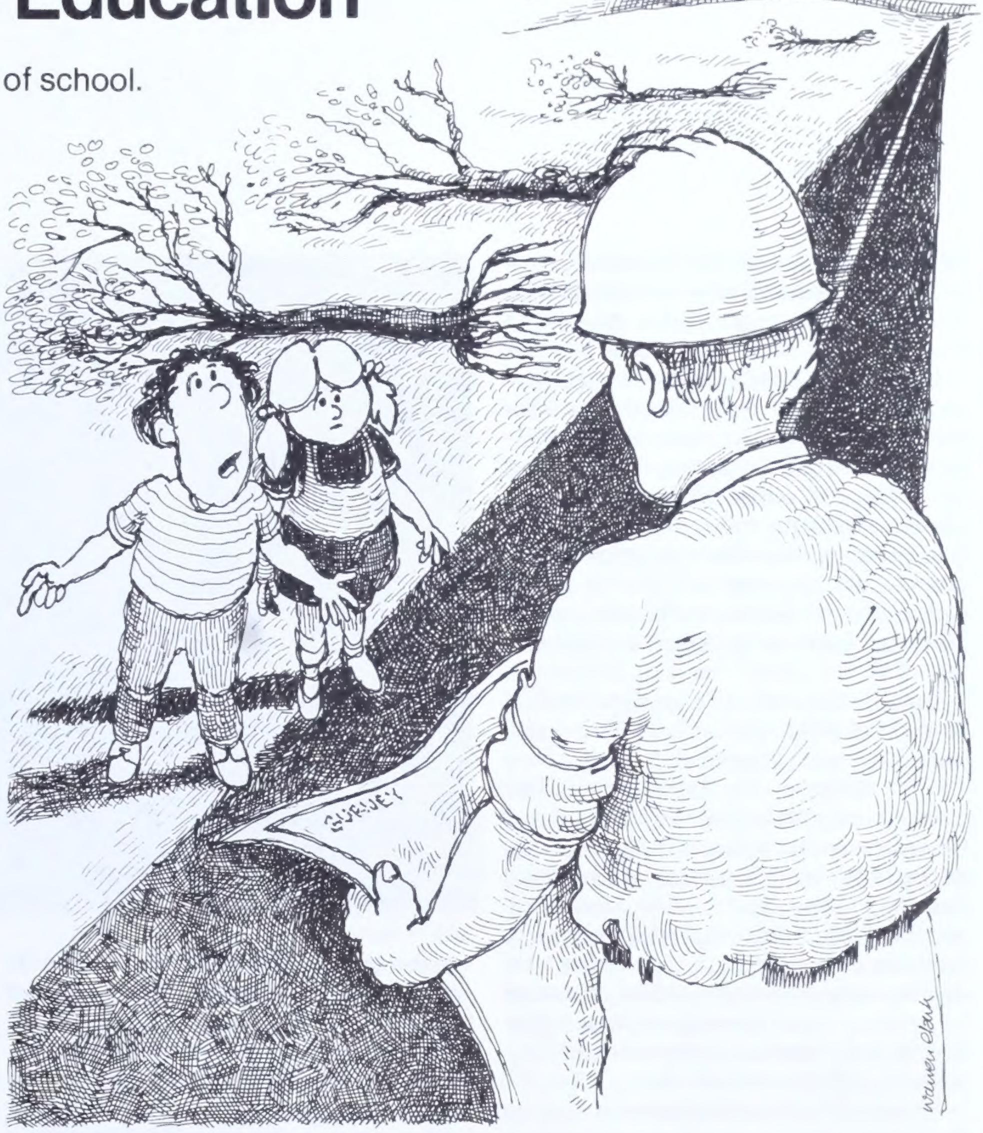
Alberta
ENVIRONMENT

Introduction: **Gillian Sniatynski**

Environmental Education

A new slant on learning--in and out of school.



Hey, Mister — for your next stretch of road we know a great detour around the trees!

Kids say--and do--the darndest things. Take the following examples recalled by Donna Barge, vice-principal of Edmonton's H.A. Gray elementary-junior high school:

- An elementary-grade student had been studying energy conservation in class. Her well-to-do parents had been considering installing air-conditioning at home. Their daughter countered with all the right arguments to persuade them to put shutters on the windows instead.
- Another student had been learning about the problems of litter. He went out after school with a garbage can borrowed from the janitor, and set to work as a one-boy schoolyard clean-up squad.

Putting into action what school teaches isn't new--presumably it's one of the basic assumptions on which our education system rests. But what may be new, in the examples just given, is the nature of that learning and the action it seeks to influence.

Environmental education in the school isn't a subject area on its own. Study units on energy or litter--or food, or winter, or waste resources, or the neighborhood--*may* fit neatly into the social studies or science curriculum. But the messages they are designed to get across may also turn up in the course of a language arts session, or in math or art--or, more likely, in all of them together.

Different people have different views on environmental education, as the story on Page 7 shows. But the definition reached by the Environmental and Outdoor Education Council of the Alberta Teachers' Association perhaps captures the spirit best. In a March, 1978, position paper, the council defined environmental education as "that education in which the goals are developed of:

- a recognition of human interdependency with other life;
- a sense of responsibility to maintain the environment in a manner fit for life;
- an aesthetic appreciation of the environment, including its multitude of interrelationships, interdependencies and settings."

The position paper adds that environmental education should be "interdisciplinary, deal with objective evidence, and produce citizens aware of the connections among energy, economics, resources, and natural and humanly produced environments." It's important to note here, too, that the "humanly produced environment" is considered as worthy of study as the wilderness; environment is *any* environment, any space in which we happen to live.

Environmental education is a process rather than a subject discipline; it's an attitude, a new perspective on the traditional curriculum.

For example, some students in this province, with the help of their teachers, might be taking a new look at winter this year.

They might be measuring depths, densities and temperature of snow. They might be looking at animal tracks and discussing various animal adaptions to winter. They might also consider winter plant life, and the ways cold affects people too. They might look at snow tires, insulation, hypothermia and cross-country skiing, at winter festivals and the reasons why people take winter vacations in Hawaii.

For some of this, they'll likely be using traditional materials in traditional classrooms. But for some, at least, they'll be out

LAUREN DALE

Joy Finlay.

of the classroom--in the schoolyard, the park, a snow shoe factory, or on a ski trip. Concrete experience is a vital component of this, as of any, effective education.

The interdisciplinary nature of environmental education may be both a good and a bad thing. George Shaw, program specialist in outdoor and environmental education for the Calgary public school board, notes that environmental education is easier to introduce into elementary schools, where teachers are "generalists." But in junior high and high schools, it's harder to break down barriers between subject area specialties.

Another danger in an approach which doesn't fall within any subject area is that it may fall between them all and be lost.

Like Calgary, the Edmonton public school board now has specialist consultants in environmental education. But they are leading what is still essentially a grassroots movement. The provincial department of education has been supportive in theory; but because environmental education isn't a specific subject discipline the funds needed to produce materials and show teachers how to use them in a really effective way haven't until now been allocated.

However Alberta Education is now in the process of appointing an environmental education co-ordinator. Education minister David King says the co-ordinator would be responsible for developing a curricular plan in environmental education "integrative with existing disciplines." The co-ordinator would also work closely with other government departments, teachers and other interested groups in identifying and developing learning resources for classroom use.

Meanwhile the grassroots movement continues to grow. And perhaps no-one is more aware of the growth, or more fit to take credit for it, than Joy Finlay, now environmental outdoor education consultant with the Edmonton public school board.

Asked for the key to her philosophy of environmental education, she quotes one of the first and most effective environmental educators, Rachel Carson, who writes: "If a child is to keep alive his inborn sense of wonder...he needs the companionship of at least one adult who can share it, rediscovering with him the joy, excitement and mystery of the world we live in."

With the object of cultivating those "sharing adults," she began workshops for teachers, and the word spread. When she began her work in the school system a decade ago, she was, as she says, a "lone deer." Now she estimates there are at least 100 teachers who are putting her approach into action.

The work of some of those teachers is described in the store on Page 11. But they, and for that matter the school system as a whole, are not the only environmental educators around.

SEEDS (Society, Energy and Environment Development Studies) is a federally-chartered, non-profit foundation established in 1976--by industry--to develop environment- and energy-related study materials for Grades 1 to 12. Some 4,000 children and 130 pilot teachers throughout the province have been working on some of the materials in the past school year. After extensive rewriting and revision, materials for Grades 1 to 6 will shortly be published. Other projects have included a Canadian energy bibliography and an Alberta field trip guide.

Until last year, when the provincial department of energy and natural resources made a grant, SEEDS was funded entirely by industry. Industry still provides most of the funding, but, says program director Hugh Phillips, there's no industry control.

Alberta Environment has an environmental education co-ordinator--Susan Washington--whose job is to produce learning resource materials, conduct workshops and other inservice training experiences for teachers, and work with a variety of other agencies as a liaison and resource person.

The provincial parks system is another vital resource in the field of environmental education. The work of one park, Kananaskis, is described on Page 21.

The hundreds of thousands of visitors to the province's 60-some parks include large numbers of school groups. And while all visitors are exposed to some environmentally educational experiences, it's the school groups who are the main targets, says Anne Isaacs, environmental education co-ordinator for Alberta provincial parks.

Isaacs says the value of the parks is that they can be used as models of the natural system; and because they are pleasant, peaceful and unspoiled can help generate in children feelings of love and concern which hopefully they'll come to generalize to other aspects of their environment.

Resource staff include full-time naturalists in the bigger parks like Kananaskis, part-time naturalists in others, park rangers who also take on interpretive functions in still others. And where no permanent staff are available, "silent guides" in the form of interpretive panels, or self-guiding trails, are established.

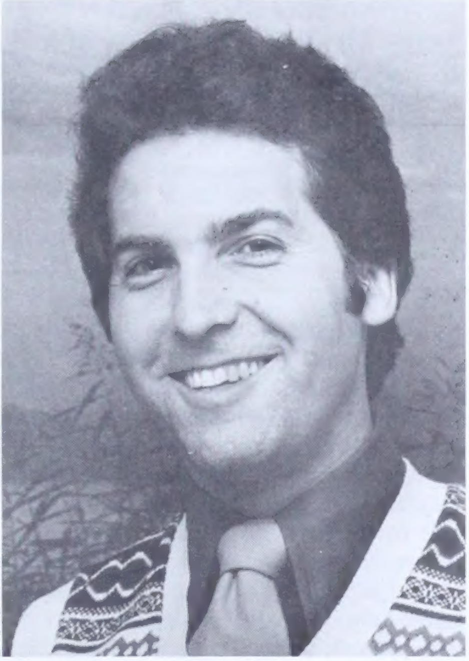
Teachers are the special focus of school-directed efforts, since they can pass on what they learn to their students. Workshops on environmental education in the parks are available to teachers across the province.

So is a variety of printed and audio-visual resource materials, which reinforces in the classroom the messages a trip to a park is designed to get across.

Teachers--and others--can also make use of residential centres like the Ministik Hills field study centre or Yamnuska, described in the story on Page 17.

But as the story on Page 23 notes, some of the most powerful messages we get about the environment run counter to what we hear in more formal settings. Media advertising pushes the sale of big cars, the recreational joys of snowmobiles, the absolute necessity of a host of energy-heavy appliances in the home.

The choices we make among all the influences to which we are exposed are value-laden; environmental educators, in the formal sense, hope ultimately to inculcate values of care and concern about the environment.


LAUREN DALE

Hugh Phillips.

"Contours" are interdisciplinary studies of the environment with a strong science base produced by Prentice-Hall of Canada, Ltd. for Canadian students. The teacher's guide points to the need to reverse the trend away from science studies by students planning careers in such fields as law, business, politics and sociology. It's a trend, says the guide, that has led to "an unusual and frightening situation."

"...We have now reached the point where decisions that affect all of us, for example, decisions regarding what should be done about a polluted body of water, are being made almost entirely upon the basis of economic and political reasoning...

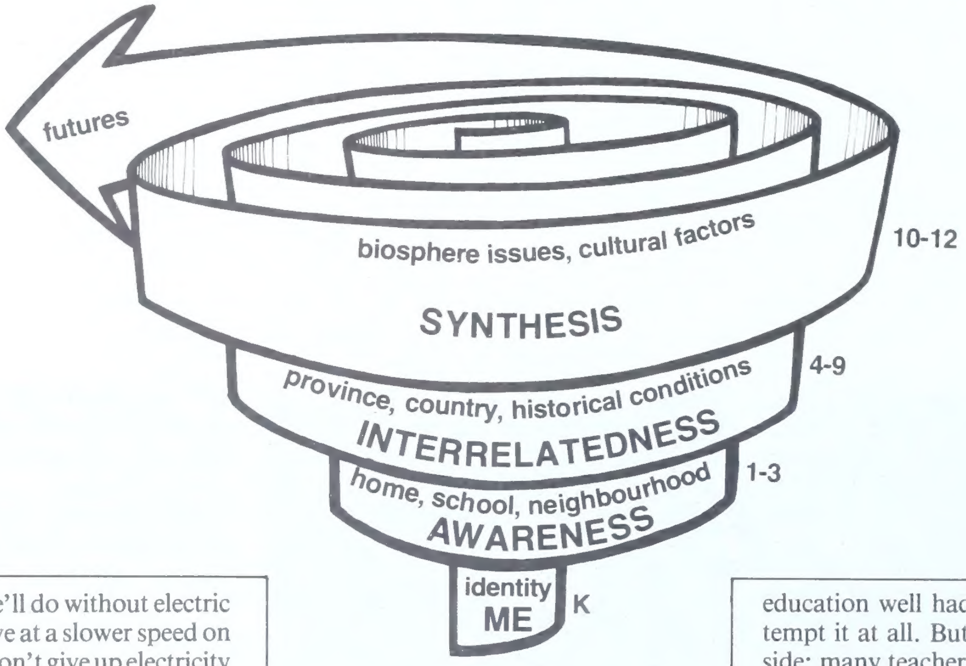
"The citizen who condones many of these non-scientific decisions also does so through ignorance of scientific principles. If he does not understand the phenomenon of photosynthesis and if he is unaware of the role played by marine algae in maintaining the world-wide level of oxygen in the atmosphere, he is likely to make decisions during a debate on a polluted body of water primarily on the basis of how much a clean-up program will increase his tax bill. However, the scientifically literate citizen may be prepared to tolerate higher taxes because he knows the possible long-term effects of water pollution."

Environmental, rather than strictly scientific, "literacy" is also the aim of the Environmental and Outdoor Education Council. Environmental literacy, says its position paper, involves a number of themes: awareness that everything we do has some impact on the environment, for better or worse, and that "the environment has impacts, often delayed, on us"; awareness that our capacity for impact gives us opportunity to make changes for the better; understanding the interrelationships among the "powerful forces of population, production, and consumption on global and other scales"; development of an awareness of the long-term consequences of present decisions, and an increased willingness and capacity to judge decisions on the basis of such consequences; acceptance of some degree of personal responsibility to help care for natural and man-made environments, and to work with other people who share this concern.

These themes are echoed in a British Schools Council research and development project in environmental education; the project speaks of the need to develop a "conservation" ethic such that "conduct harmful to the environment is seen to be as undesirable as cheating or stealing."

It's important to note, though, that the Alberta environmental educators questioned do *not* intend to turn their students into "eco-freaks" who shun all but horse-drawn transportation and light their homes with beeswax candles.

And it's not necessary for effective environmental education teachers to be eco-freaks either. Red Deer high school biology teacher Bob Mills, who is interviewed on Page 13, notes the extreme importance of getting students to see both sides of environmental issues, to see, for instance, that you can't condemn coal mines outright when your home is lit by coal-generated electricity. And he believes in making his


futures
biosphere issues, cultural factors
SYNTHESIS
10-12
province, country, historical conditions
INTERRELATEDNESS
4-9
home, school, neighbourhood
AWARENESS
1-3
identity
ME
K

own position clear; he'll do without electric can openers, he'll drive at a slower speed on the highway, but he won't give up electricity and feels much safer in a bigger car.

What should happen in the early years to form a sound basis for an "environmental ethic"?

Dan Stoker, specialist in environmental education and formerly Alberta Environment's environmental education co-ordinator, drew up the scope-and-sequence model illustrated here.

He notes that young children enter environmental education at the "me" level, at the base of the model. In this "identity" stage, the focus of instruction is on topics most relevant to the child--parents, family, the home, the backyard, clothing, pets. The "me" stage, says Stoker, "answers the question, 'Where do I fit in?'"

As the model's spiral is followed, the focus of one stage becomes the core of the next. The "awareness" stage represents the beginning of instruction beyond the immediate concerns of the child. The physical environment of the schoolyard, the classroom, the forest, the lake, and the things found therein, are sought out. In subsequent stages, students begin to make connections concerning the interrelatedness of living things; the final stage is a drawing together of all the threads and the ability to look responsibly at all sides of environmental issues.

The experts advise that slow, small steps are best in environmental education undertakings. Hugh Phillips of SEEDS, who is also president of the Environmental and Outdoor Education Council, has an "essential dozen" steps which include beginning where you're at, using the here and now, making the most of teachable moments, and having fun.

The Calgary public school board has, in the outdoor school at Silver Creek ranch 100 kilometres northwest of Calgary which runs for 20 weeks of the year, an excellent resource for environmental education. George Shaw notes that the school has six specialist teachers, two of whom are available for preparation in classes in the city, before the students' trip begins. Last year some 1,600 Grade 6 students from 33 different schools in the system came to the school for a week in residence. Yet, says Shaw, it's necessary with urban chidren to work up slowly to that week, and the subsequent steps of learning to function in an even more primitive setting. It's also a great moment in environmental education when a teacher of 15 years' experience for the first time takes a Grade 2 class outside for a 10-minute session in the schoolyard.

Nobody says environmental education is easy. A one-day field trip may take weeks of planning, necessary not only to ensure the teacher is fully informed about what will be happening but also, in some cases, to make certain the students will be safe.

And it's so easy to bungle. A teacher now highly experienced and effective in environmental education remembers an early field trip to Elk Island national park near Edmonton. The planned moonlight hike to the trapper's cabin never did reach its destination, because the teacher had forgotten her way. And into the bargain, it poured with rain; 30 pairs of soaked sneakers had to be strung out to dry overnight.

Teachers *do* have to know what they're talking about; there is some feeling that the teacher who can't handle environmental education well had perhaps better not attempt it at all. But that coin has a reverse side; many teachers who with a bit of help could probably do an excellent job are unnecessarily daunted by their own shortcomings.

There's no question, too, that many environmental issues are politically sensitive, and teachers who "dabble" may touch a nerve. Bob Mills recalls the case of a teacher in a small town who started with his students a study of sewage release. The mayor, who would tolerate no criticism of the civic engineering, happened to be a powerful force on the school board...

But if the article on Page 30 has any relevance for Alberta, teachers are interested in environmental education in spite of the difficulties. As the story on Page 14 shows, the students are certainly responding.

And the proof is in the pudding. Donna Barge's students, concerned about energy conservation and litter, are only two of many examples of students in whom environmental education experiences do seem to have created a change.

Hugh Phillips recalls the mature, responsible planning for class camps carried out by some of his Grade 6 students. Bob Mills reckons that at least a couple of former students now participate in most public hearings on environmental issues. Some, now businessmen, are interested in recycling. Another has organized a letter-writing lobby group concerned about the environment.

So, if the teacher is interested, the kids like it, and it works, where to begin?

Perhaps, as Dan Stoker says in the story on Page 27, with the kid or kids of our choice, and all of us learning to say "Wow!"

Gillian Sniatynski is the freelance editor of this magazine.

Speaking For Themselves

Twelve people answer the double-barrelled question:
"What is your personal interpretation of environmental education, and what do you see as its role in Alberta?"

David King
Alberta Education Minister

ALBERTA GOVERNMENT PHOTO

A key feature of early activity must be to address the problem of affective learning.

Obviously, it is very important that our young people be "environment literate." Air, land, and water "carry" all life--and their carrying capacity cannot be exceeded or debilitated without imperilling all life. Young people must be aware of the facts, as a pre-condition of making affective judgments.

I also believe the "environment literacy" is best provided through a variety of already existing courses rather than through the development of a new, and discrete, course. From this perspective, environmental education should be ever-present in the schooling experience of the child. It should be developed and applied in an interdisciplinary and comprehensive way.

The process, as I see it, would involve diverse learning experiences and a broad array of educational approaches. This might range from simple awareness and understandings of the man-made and natural environments at the elementary level, to application of critical thinking skills required to understand the complexity of environmental problems at the senior high school level. The approach would include sensitivity to and understanding of the learner's own community and environment in the early years, with a graduation to regional, national and international perspectives at the higher grades.

A key feature of early activity must be to address the problem of affective learning. This approach will be relevant to many courses. On the other hand, no course (or perspective) with a large affective content can be successfully introduced until we know more than at present about pertinent strategies and tactics.

Sandy Rhodes
Grade 3-4 teacher,
Earl Grey elementary school, Calgary

Environmental education is the development of an awareness that man is an integral part of the natural environment. This can be promoted by encouraging children to investigate the history of their environment, to observe and study what it is like now and to predict what it could be like in the future.

Our citizens need to realize that man is natural and any environmental changes he makes are natural. However man is capable of making decisions about his world so he is responsible for maintaining a balance in that same natural environment. An education about the environment should lead children to realize that man's relationship with the ecosystem is continually affecting it. People need to know that while we cannot help affecting the cycles we must try not to disrupt them in a harmful way.

We can begin by developing awareness about man and his environment and, idealistically, this will become an on-going, never-ending education. Our efforts are successful when the people whose environmental education we began start to take actions to protect and help their natural surroundings. If we can educate our citizens to think and act with a responsible attitude towards Alberta's natural environment then every Albertan's right to a healthy, living province could be guaranteed.

Jack Cookson
Alberta Environment Minister

ALBERTA GOVERNMENT PHOTO

One cannot expect citizens to be concerned about damage to the environment if they don't have a basic understanding of what makes up the environment.

Education is an important process in providing students with the background information pertaining to a subject and allowing them to use this information in forming their own ideas about the subject. Environmental education would be the supplying of background facts and figures about the environment and letting the individuals form their own ideas about the environment.

I feel that this type of education is very important in order to make the citizens of our province aware of all the ramifications of our environment. One cannot expect citizens to be concerned about damage to the environment if they don't have a basic understanding of what makes up the environment. It is also important to begin this education process at an early age as the strength of our province is in the younger generation.

If we can make tomorrow's decision-makers more aware of how people and their environment can live and prosper together for the betterment of both, the problems that we presently are facing with regard to environmental quality will become minimal.

Scott Saville

President, Alberta School Trustees Association

Today's student involvement with environmental education will help to ensure a balanced ecological base.

Children are our greatest natural resource. Adults protect and nurture the young, entertaining hopes that the children will have "more" than their forefathers. Yet we may all have less.

During the seventies we brought into focus the rights of the child. And, surely, we all have the right to live in a quality environment. In this decade, also, we saw public interest in the environment and in ecology grow. In our schools, we have expanded the curriculum beyond the basics to keep pace with societal awareness.

One-day field trips and week-long courses at outdoor schools have provided unique opportunities to interact with nature. Encouraging our youth to take responsibility for their surroundings and teaching them to preserve for continuous enjoyment our bountiful country, is environmental education.

Alberta, with magnificent areas of still largely undeveloped wilderness, must be protected and nurtured. Today's student involvement with environmental education will help to ensure a balanced ecological base.

John Amatt

Manager, School of the Environment, Banff Centre

One of the biggest challenges facing mankind in the final decades of this century is the wise allocation of our non-renewable natural resources. Decisions on the consumption of these resources must be made not only by elected officials but on a co-operative basis by the public who use them, by the industries that develop them and by the governments that regulate them.

Environmental education must be the link between these groups, creating in the minds of each an awareness and understanding of the perspectives, concerns and needs of the other. It must be the goal of environmental education to bring to the decision process a realization of the absolute importance of co-operative decision-making and to reinforce the trend away from the confrontation that has pervaded this process in the past. Environmental educators must also encourage the development of a balanced philosophy between the need for continued development of civilization on the one hand, and the importance of conservation of resources on the other.

Environmental education in Alberta can become the leading edge of a national and international movement towards co-operation, that will help to ensure the survival of society in generations to come.

Jean Funk

Outdoor recreation director, Edmonton YWCA

LAUREN DALE

Man's interrelationship with "Spaceship Earth" must be the focal point.

Environmental education is many things to many people. I believe that recreation and education can successfully combine their human and technical resources to help people to act in an environmentally sensitive manner.

Environmental education must be aimed at helping people firstly to become aware of the natural world, then to increase their understanding of how it functions, Man's interrelationship with "Spaceship Earth" must be the focal point. As such, it is a natural integrator of many diverse subjects, from science to life skills.

Organized camps can be an ideal setting for people in peer groups, family or other groupings to experience a variety of alternate lifestyles. Through the closed community atmosphere of a camp, an intensive look at food, waste, accommodation, and management priorities is possible. It is also a perfect place for recreation and education to work together to help each individual examine the leisure, work and day-to-day routine components of his lifestyle.

Several groups such as the Alberta Camping Association, the Environmental and Outdoor Education Council, the departments of environment, education, and recreation and parks are committing staff time and financial support to environmental education. However, more support is needed from both the private and public sectors to ensure that each person and each business is operating in an environmentally sound manner. We've got a long way to go.

Dr. Cal Evans

Vice-president, general manager of exploration, Esso Resources Canada Ltd.

ANDREW VAUGHAN

Environmental education needs to show the reality of nature as a creative and adaptive force, in a constant state of change.

In my opinion, the essence of sound education is to help students develop the ability to be objective and analytic, making their own judgments based on realities, not on myth or prejudice.

Thus, environmental education needs to show the reality of nature as a creative and adaptive force, in a constant state of change. It needs to show, too, how mankind can operate with considerable flexibility and sensitivity within the environment. A danger lies in prejudiced pedagogy, where stress is laid on the myth of nature's immutability, that nothing must change or be changed or that change due to development is necessarily bad.

The Dutch have reclaimed land from the sea; in Alberta, through irrigation, we have turned dry desolation into prosperous farmland. Our western environment is no less subject to change than any other, and change caused by human endeavor can be accommodated in the environment, if such change is approached with care and sensitivity.

Within this framework, my company, Esso Resources, is supporting environmental education through support of the SEEDS (Society, Environment and Energy Development Studies) program. The material for Grades 1 through 12 will be available in 1980. We believe that SEEDS will go far to help young people understand the interplay of environmental factors and energy development. We believe also it will highlight the exciting challenge offered us to be environmentally sensitive while enhancing the viability of western civilization.

Ray Sloan

Chairman, environmental education committee, Environment Conservation Authority

Thanks to its present resource endowment, Alberta is basically a resilient province. But in the context of decreasing resource bases and an ever-increasing technological society it is imperative that we guard against adverse environmental effects, thus assuring our generation, and future generations, a quality environment.

Environmental education in two contexts, formal and informal, is crucial to obtaining this goal. Politicians, civil servants, leaders in industry and the general public must be aware of the sensitivity and interdependence of all aspects of the environment. They must be aware of long-term consequences and realize that many of their actions and inactions may have national and international implications.

To achieve these goals it is imperative that we in Alberta have:

1. an informed public in both the formal and informal sense;
2. a public which has developed an environmental ethic and accompanying behavior patterns;
3. teachers who are able to deal confidently with environmental issues;
4. mechanisms for meaningful involvement in proposing and investigating alternate solutions to environmental problems;
5. a government whose members are responsible to the people who elect them and to their own consciences, not to the party and its short-term goals;
6. a legal status for the environment and the co-inhabitants of this province.

Garnet Page

President, Coal Association of Canada

Environmental education, in my view, must take into account all aspects of modern living, and not be only concerned with nature conservation and related matters. It must be balanced, and show that the responsibility for environmental quality rests on all citizens, not just industry. It should also demonstrate that the degree of environmental quality is directly proportional to the level of living standards desired by the general public.

In the last 10 years, when environmental matters have been of increasing concern, the subject has been difficult to teach at any level from the lower grades up to and including university because of its multi-disciplinary nature. We must continue to try to develop it as a subject in its own right, while recognizing that environmental concerns are part and parcel of the application of both the physical and social sciences to the improvement of human life.

ANDREW VAUGHAN

Marian Jones
Grade 12 student, Red Deer

Young people have just as much right as adults to voice their opinions, since we shall have to live with any mistakes much longer.

I see environmental education as the in-school information of students. From this information students can be aware of current biological problems, proposed projects, etc., and form an intelligent opinion.

Environmental education is very important to all ages, but especially to the younger generation. It should be instilled in every grade of a school curriculum. Unfortunately there is a serious lack of it in Alberta's schools. The public must be well informed of environmental topics so that they may support it or have a fair chance to act against it. Young people have just as much right as adults to voice their opinions, since we shall have to live with any mistakes much longer. I think the greater part of the public doesn't realize just how much our environment influences us and vice versa.

Alberta and British Columbia share what I feel to be the most beautiful geography in Canada, the Rocky Mountains. But whether it be mountains, lakes, rivers, or plains, we, as Albertans, have the responsibility to manage the use of that land.

Valerie van Veen
Program director, Outdoors Unlittered

The purpose of environmental education, as defined within the school system, is to teach the natural cycles and interdependencies that govern our environment, with emphasis on how man affects these cycles and interdependencies. In the education system, environmental education is interdisciplinary and adaptable to all ability and age levels. Building on these basic concepts, environmental education imparts an awareness of how our planet works, and what we have done, and can do, to affect these workings.

But environmental education does not, and must not, only take place within the educational system. Mass communications have played an increasingly important role in educating the general public about the environment and environmental matters. Many organizations have included environmental awareness programs in their activities. Environmental education, formal or informal, should prepare an individual to make informed decisions about all interactions with the environment, with an understanding of how those decisions will ultimately affect the environment, and thus, himself.

In Alberta, the increasing, and often conflicting, demands for food, energy, recreation areas and wilderness preservation will require thoughtful, informed decisions by all Albertans. Environmental education, formal and informal, is vital to ensure an informed, aware public.

Dr. Dixon Thompson
Program director, environmental science,
Faculty of environmental design,
University of Calgary

My personal interpretation of environmental education is that it deals with environmental problems (both the built or man-made and natural) and the basic causes of those problems, mainly resource and energy exploitation. It must be concerned with many different levels or geographical distributions of environmental problems: local, regional, provincial, national and international. It is necessarily interdisciplinary including the social and natural sciences; the qualitative statements and attitudes of the arts, literature, music; and a historical perspective.

It is essential that environmental education include more emphasis on our climate and what it means for environment and resource management and design.

The role it should play is in assisting a general understanding of the problems and solutions, the systematic, primary and secondary implications of both solving and not solving the problems. The role would be to generally help to ensure the long-term security of healthy people, a healthy environment and healthy industry in Alberta.

LAUREN DALE

Jannie Stafford Edwards

Putting Plans Into Practice

Four teachers talk about environmental education projects.

LAUREN DALE

Bonnie Melnyk

Garneau elementary-junior high school, Edmonton

One of the first things you notice in Bonnie Melnyk's colorful classroom is a magnificent stuffed great horned owl loftily surveying his domain from his perch on a bookcase. The owl, nicknamed Orville by the students, is testimony to Melnyk's philosophy of making the abstract real for her students.

"I try to get the kids to experience their environment in a very personal way," she says. This approach, begun with her Grades 1 and 2 students, develops an aesthetic appreciation for the immediate environment. She feels this appreciation will develop into a sense of environmental responsibility as the children grow.

Introduced to environmental education by a "pioneer" teacher in the field, Joy Finlay, Melnyk finds that remaining flexible enough to include her students' specific interests recharges her curriculum. She approaches environmental concerns from a thematic, interdisciplinary stance, beginning always in the classroom and working outdoors. For example, a social studies unit on the community begins with a scientific look at an ant colony. For this, Melnyk sets up a glassed-in ant colony right in the classroom and the children observe first-hand the intricate social structure of the ant community. Outside in the schoolyard, they develop dramatic role-playing skills by taking on identities in the ant colony: some are nurturers taking care of the young, some defend the colony, and others venture forth as hunters garnering any available litter as "food."

From there, language arts skills are honed when the students write letters to neighborhood banks and businesses requesting tours; other projects include drawing up a "garbage graph" comparing, for example, refuse from a convenience store and a health food co-op.

Melnyk sees the beginnings of a sense of environmental responsibility stirring in her students. On one occasion, trees studied by one of her classes were cut down to make way for a new freeway. "The concern felt by the students was echoed back to me by their parents," said Melnyk. "The kids felt personally attached to those trees."

Bruce Bembridge

Leo Nickerson elementary school, St. Albert

LAUREN DALE

Last spring, a group of Grade 6 students from St. Albert discovered that Mother Nature was alive and thriving in the heart of Edmonton. The group, led by teacher Bruce Bembridge, logged almost 100 kilometres in four days of cycling and three nights of camping in Edmonton's Capital City Park system. According to Bembridge, this feat left them with a "profound" sense of accomplishment, a strong feel of group cohesiveness and new insights into the intricacies of the urban environment.

Bembridge praised City officials for their co-operation in the planning stages. "At first, they were hestitant to let us camp in the city and I can certainly understand their concern," he said. Although he rates the trip as an unqualified success, Bembridge can see potential impact problems on the parks system from a "continuous stream of camping tours from May to September."

He voiced the City's concerns to his students and discussed with them the importance of a "minimum impact" camping philosophy. On the trip itself, the students' awareness of litter and vandalism problems

St. Albert students on their cycling trip (left).

Red Deer Students review Kananaskis planning (right).

Ashmont students at work on their adventure playground (below).

en route reinforced their commitment to maintaining a harm-free relationship with the environment, said Bembridge.

Advance planning spanned several months. Each month, the students met as a group to discuss a topic of concern; bike safety and repairs, food, equipment, and delegation of camp duties were all thoroughly gone over. Assisted by two student teachers from the outdoor education program at the University of Alberta, Bembridge covered all angles. He personally checked each student's bike, obtained camping permits from the City and took the group on a day-long "shakedown cruise" to give them a taste of the rigors ahead. His own van, driven by one of the student teachers, carried the bulk of the food supplies and bike repair equipment and served as a pilot vehicle for highway travel. One leader drove the van to each pre-planned lunch and camping rendezvous point.

No stranger to the outdoors, Bembridge's ecological interest stems from early involvement in bird-watching and natural history groups. He was able to share his background with the students in dawn fishing and bird-watching forays. "The teachable moments just kept occurring," he said. Passing the City's sewage treatment plant, the Legislative building, the Commonwealth aquatic centre and other key points led to discussions of "how complex the urban environment really is." As well, students developed practical skills that paralleled a traditional academic curriculum: reading maps honed social studies skills, estimating food supplies and arrival times employed math skills, and keeping daily journals developed language skills.

Although the group stuck to a tight schedule, Bembridge was able to seize opportunities for spontaneous, spur-of-the-moment discoveries. "I had acquaintances in the right places at the right times," he said. This good fortune led Bembridge's students through the outdoor education equipment room at the University of Alberta where they saw snowshoes being made; and behind the scenes at the provincial museum for a look at the painstaking process involved in putting together natural history exhibits.

"All in all," said Bembridge, "the weather was kind, the planning paid off, and the kids pitched in terrifically." A good conspiracy of events for a successful environmental education experience.

Jim Martin

Ashmont secondary school,
Ashmont

Jim Martin is operations manager of a thriving young company. He's also special education teacher for the County of St. Paul. Although it sounds as if he wears two hats, Martin combines the two roles working with 13- to 16-year-old students in a rather unique life skills program. Under Martin's guidance, the students have essentially formed their own company and fund their varied projects through the sale of educational toys and moccasins that they make themselves, as well as through the operation of a self-run school canteen and hot lunch program serving the entire school.

Last year, the program was expanded to include a schoolyard cleanup and rehabilitation project. The original impetus for the project came from the deplorable condition of the schoolyard. As the snow receded and exposed the year's accumulation of litter and construction debris, Martin realized the difficulty of trying to encourage respect for the environment when the students' own surroundings were so neglected.

He approached the superintendent of schools proposing that his students tackle the schoolyard cleanup. Given the go-ahead to write up a proposal, the students went one step further, and drew up two contracts outlining how they proposed to clean up the schoolyard, repair fences and create a "discovery playground" for the elementary school adjacent to the junior-senior high complex. The students researched the availability of materials in the community, estimated the number of man-hours required, and costed each stage out. In the true spirit of business, the school board analyzed each contract and made counter-offers in each case.

"The students are learning in a very practical way that what is good for the environment is also very often economically feasible as well," said Martin. This became clear in the very beginning stages of the schoolyard cleanup: discarded pop cans littering the schoolyard became the focus of a recycling program that grew to involve the whole

school. Martin's special ed. students spearheaded an advertising campaign encouraging students to deposit their used pop cans in bins strategically located at recycling depots throughout the school. The income from this "sideline" is quite appreciable, said Martin.

The life skills program has now been expanded to 22 students, and another full-time teacher, Ross Wright, is now involved. Both Wright and Martin stress recycling materials: fences now being built make use of salvaged material from a skating rink that was recently torn down; and the students are restoring playground equipment obtained from a defunct playground in the community.

A further contract involved the creation of an environmental study area leading from the schoolyard to a pond about 180 metres away. The area proposed for this project was originally used as a construction dump and the initial stages will involve cleaning up construction debris. A nature trail has already been marked out and clearing has begun.

"From an environmental education point of view, this project involved the students in assessing past human impact on the area and led to discussions of how best to integrate students with their environment in the future," said Martin. To this end, the trail will be covered with spruce chips to keep erosion to a minimum; litter bins will be set up and monitored along the trail; and benches are planned so that the open area can be used as an outdoor classroom.

Martin credits the success of the program to the students being placed in responsible positions and taking pride in their work and their positive impact on their own environment. A profit-sharing scheme in which 10 per cent of profits from all projects are returned to the students is an added motivation.

"Because the students have a say in the decision-making of their own company, they are becoming more creative in coming up with their own ideas and carrying them through," said Martin.

Bob Mills

Lindsay Thurber comprehensive high school, Red Deer

ANDREA VAUGHAN

When he first became involved in the field of environmental education 15 years ago, Bob Mills was dismayed to find textbooks that dealt with "rivers in Michigan and alligator problems in the Everglades." Reasoning that there were environmental issues of concern "in our own back yard," Mills began to stress social action as a consequence of studying the environment, encouraging his students to explore all sides of environmental issues that directly and indirectly affect their lives.

Mills believes that students who become involved in the decision-making process grow to become committed adults with a sense of practical responsibility as to the impact they can have on that process. As an example of this philosophy, Mills involved his 1977 Biology 20 class in a study of the provincial government's plans to develop the Kananaskis region as a recreation area.

General background came from a report obtained by Mills outlining the province's planning strategy for this area.

After reading the report, the students divided themselves into "interest groups" (the Indian community, tourists with trailers, skidooers, wildlife conservationists) and lobbied their position with the rest of the class in a role-playing situation. "I always attempt to get the students to see an issue from all sides," said Mills. "In fact, if anyone gets too emotional or narrowminded about something, I switch them to defending an opposing point of view."

While the classroom research was in progress, the students elected two leaders to lay groundwork plans for an intensive four-day field trip to the area. "I feel that it's the teacher's role to provide the initial enthusiasm and then back out and assume a consultant's role," said Mills. "Otherwise, the field trip could turn into just a Sunday picnic for the kids."

The students arranged to use the University of Calgary's department of environmental design facilities as research headquarters. They had access to the library there and listened to park wardens, scientists, trappers and others present their points of view. Armed with this intensive research, the group went by bus to the Kananaskis area to study the terrain and wildlife and to assess firsthand the implications of development in the region.

To get a feeling for public reaction, the students prepared questionnaires which they distributed to a sampling of Calgary and Banff residents. The final result of this research was compiled into a report that was sent to the premier and various cabinet ministers. Their findings? "Generally, the students agreed with the general planning policies," said Mills, "but they did offer some practical suggestions for change."

Not all Mills' environmental education projects are as complex as this or stress as heavily the social action component. He regularly takes students on backpacking trips in the foothills and mountains where the stress is more on ecological study. Each student chooses a specific area of research into plant, insect or wildlife populations and uses class time to become a "pseudo-expert" in that area. The trip is then a means for the students to collect base-line data.

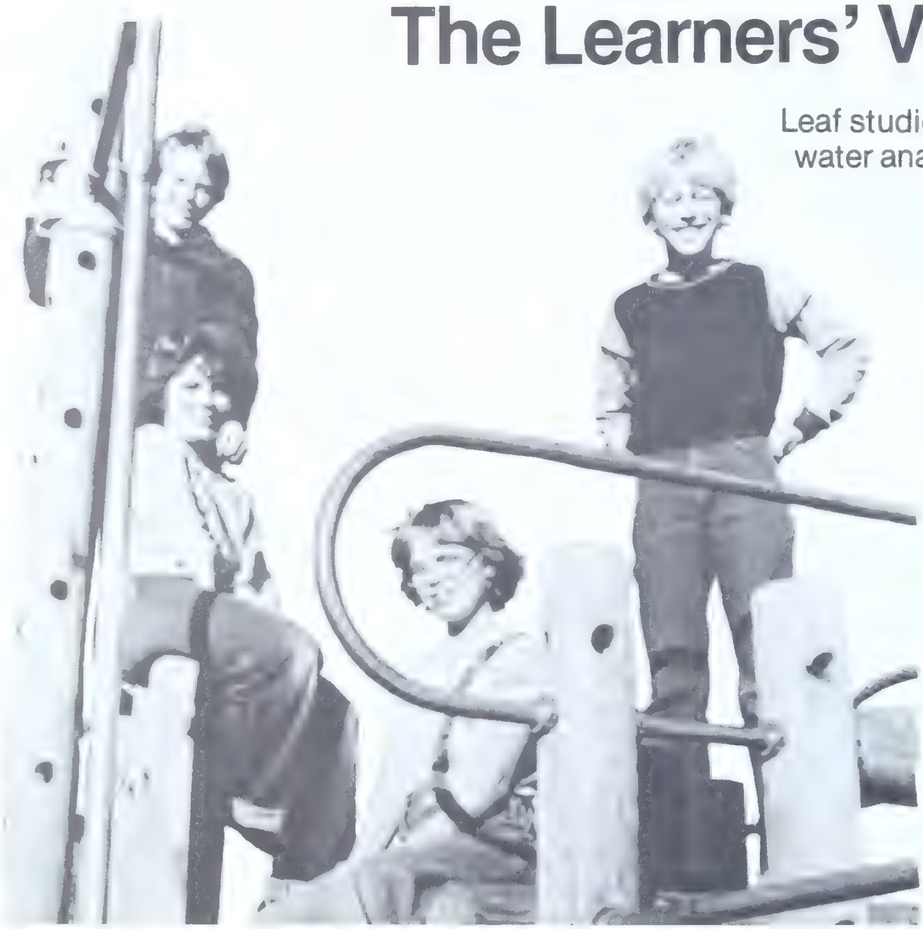
Mills cautions, however, that a strictly "scientific" approach to environmental study has its hazards. "I feel this approach leans too heavily on classifying and analyzing the environment without encouraging a sense of responsibility," he said.

Jannie Stafford Edwards is a freelance writer living in Edmonton.

Brian Tucker

The Learners' View

Leaf studies, meadow trips, water analyses remembered.



The Grade 1 and 2 students are skittering across the school yard like water bugs on a pond.

They're touching everything in sight--the steel fence, goal posts, car tires, stones in the parking lot. And they're using various parts of their bodies--fingertips, palms, noses and bottoms.

This feverish activity looks like fun, but it's more than that. It's helping to increase students' awareness, and appreciation, of their environment.

The students, at Garneau elementary-junior high school in Edmonton, are only some of a growing number throughout the province for whom field trips--even to the edge of the school yard--have a distinctly environmental focus.

Students interviewed in Grades 6 and 12 say their field trips are not only fun, but have also made them more aware of what man is doing to reshape, sometimes to spoil, his environment.

For the Grade 1 students, the highlight of their school yard expedition is a game that resembles a peanut scramble. Their teacher asks for volunteers to play four birds, a fox and an owl.

The "birds" scramble around the circle, flapping their wings like clumsy pterodactyls, searching for food--the peanuts. When tagged by a "fox," the bird must freeze. But the fox isn't home free either. "You have to be careful because a great horned owl is after you," explains Chrissie Reid, 7.

While the kids are playing the game, they're being introduced to a key concept in ecology--the food chain. They learn what happens if there are too many birds. Or how the birds would multiply if suddenly there were no foxes to keep them in check.

Starting the students on such mini-trips at five, six and seven years old helps them become more conscious of what's around them. So, by eight, nine and 10, they might take those feelings and translate them into action.

For now, though, their understanding remains simple.

"The fox is my favorite animal," confesses Lara Karoles, 8. "Playing games is the most fun."

"I like being a bird best--they get the peanuts," adds Lynne Koziey, 7.

Chrissie prefers playing the fox "because it is fun to catch people."

Still fresh in their minds is a trip to study leaves three weeks before.

"I was surprised to look at them," says Lara. "There was a story about them.

"The leaves fell down (because) they were pretty weak, the wind was blowing hard, and it was fall."

One of the students also found a cocoon. "We passed it around to see if it had a caterpillar in it," says Lara. The cocoon "felt crinkly like paper."

"If I was an insect, I'd like that home," adds Camilo Molina, 6.

"We talked about leaves. When they grow, fall. How they can be home for a bug," says Chrissie.

Lynne remembers the leaves as "crinkly and dry." The leaf tale starts with a seed, she says. "Then the leaves grow fresh and green on a tree.

"In fall, they fall down because of the wind."

LAUREN DALE

The leaves trip shows them that each leaf has a purpose. When it falls to the ground, its job isn't done. It eventually decays and becomes part of the soil. And from the soil, trees grow.

A group of Grade 6 students in St. Albert recently witnessed some of nature's magic.

They set out from school on a morning so spooky and misty cars looked like ghosts groping through the fog with flashlights.

When they got to their destination, a meadow five kilometres away, frost still coated the ground. It wasn't until the early afternoon that it was warm enough to make their "sunflower." They formed a circle and

Lara Karoles (left, below).

Brad Bowyer (below).

John Goldsand and Leslie Watson (right, below)

flopped down in grass so long they couldn't see each other.

Then the magic started. Sixty strangely quiet kids peered up into the sky. Suddenly the sun broke through and poured warmth on their faces. As the clouds melted away, a whistling, warbling sound drifted down to the group.

Their teachers pointed out a barely visible formation of swans emerging from the clouds. Then a hawk glided over.

"I thought they only lived in the country," recalls Brad Bowyer, 12. "I was kind of shocked when I saw the hawk."

It was a moment Brad and the others in two classes at Leo Nickerson elementary school will likely recall long after math properties and dates in history fade from their memories.

They met back at the school after the trip in a "sharing circle" to reveal "the neatest thing that happened to me today."

LAUREN DALE

"A dead cat," says one girl.

"Running around in the grass."

"Seeing beavers in the Sturgeon River."

"Sitting by myself in the meadow."

Another exercise they enjoyed was "adopting" a tree. Each student, blindfolded, explored a tree and then, later, minus blindfold, had to find it. (Follow-up activities included writing up adoption papers, and journal entries.)

"You use all your senses," says Yvonne Dixon, 10. "My tree was bumpy. I got to feel every little nick."

"Mine had moss at the bottom," says Jodi Russell, 10.

The kids admit it's kind of a day off. They're having fun, but they're also learning. And there's nothing wrong with that, they say.

As Brad walks through new residential areas on the trip, he sees houses inching towards the meadow. What if they swept over it? "I'd feel sad. I don't know if people recognize it but it's taking away from what people enjoy."

And every time the class returns to the meadow, Brad expects to see more evidence of the vandalism that's already apparent--old shoes dumped there, tin cans riddled with bullet holes.

"It would be nice to leave a little note to tell people not to do it. It bothers us. (Vandals) make it unfair for animals."

The students do their part by taking garbage bags to collect their own litter.

Yvonne treasures field trips because they offer a chance to go outdoors by herself. It would be "really bad" if for some reason they had to be cut out. "Some science classes should be held outdoors. You learn more there than from reading a book."

Jodi says if she never had the chance to go on field trips "I'd just shrivel up. I never used to like going outside. But it's different now."

For someone whose recollections of high school science date back a few years, high

Gordon Bocock (left) and Curt Blair

LAUREN DALE

school field trips seem a giant leap in sophistication. Analyzing water samples for bacteria and other organisms sounds pretty impressive.

Two classes of Grade 12 students from Edmonton's Ross Shephard high school did that and more on a field trip to study the effects of Edmonton on the North Saskatchewan River.

They also tested water hardness, took algae counts and analyzed plant life on the river banks.

Major differences in bacteria counts were found in the water samples taken at five different sites along the river.

There was no right answer to explain the differences in water quality in the samples. The field trip wasn't intended as a documented study but as a means of teaching students the steps in scientific investigation and the way to write a scientific paper.

John Goldsand, 17, says the field trip prompted him to take more interest in recent newspaper stories about phenyls dumped into the river by unknown polluters.

The approach taken on field trips "isn't to get you gung-ho on the bandwagon to conserve everything," John says. "It just makes you more aware of what there is to conserve."

He has always appreciated the outdoors, so doesn't think the field trips have changed his attitude much. But "they make you more aware of how other people treat the outdoors."

Leslie Watson, 16, enjoys field trips so much they've convinced her to take science when she goes to university. She recalls a trip she took in Grade 11 to the Ministik Hills field study centre about 50 kilometres east of Edmonton.

It offered "a bit of everything"--a marshy area, a pond and trees. She was surprised to find such a variety of wildlife--birds, beavers, white owls and grouse--not too far from a big city.

Details about the different trees and mosses made the trip all the more memorable, she says. "It's the little things we were told. It make you notice more, become more aware because you know more...The trip helped me appreciate the outdoors more."

For one thing, it pointed out how various organisms are links in a food chain, and how they depend on each other.

"You realize how many different things affect our lives. You see how fragile nature is, how it doesn't take much to disturb nature."

It's been four years since Gordon Bocock's last field trip, but he remembers it well. His class studied a pond and bog on Highway 16 east, taking plankton samples and samples from the pond's bed, collecting bugs and counting plant species.

He remembers the soil around the bog was "like a sponge. You could squeeze water out of it with your hand." And that soil was relatively acidic, so plant growth was limited.

The trip showed students two different environments only eight kilometres apart, he says. And they learned how a pond gradually fills in with silt and becomes a bog, then an open meadow and eventually a poplar forest.

At the time, Bocock, now 20 and a second-year university student, felt the trips were just another part of the high school science course. But as he gets older and hears more about environmental issues in the media, the trips' significance grows.

"The field trips made you more aware of how nature worked...how complex it is.

"I live on a farm half-way between Edmonton and Fort Saskatchewan. I see ducks in a slough, then I see people dumping stuff in the ditch. It bothers me.

"Now when you look at it, when you look at ponds that have been polluted, you realize what it's destroying."

Curt Blair still remembers a field trip to Wabamun two and a half years ago. Now a third-year university student, he recalls being part of a group that took water and weed samples from the lake.

"I was pretty surprised. It was quite polluted."

He had thought he was familiar with the lake because he had swum in it often. "You look at the water and you see weeds. But you don't realize the stuff that goes through the water that's unseen.

"It opens your eyes..."

Curt doesn't believe the trips changed his attitudes about environmental issues. But media reports on the environment now grab his attention.

"The other day as soon as I heard the name Wabamun, I turned up the radio to see if it (an ecological study) jived with what we had learned."

Brian Tucker is a journalist in Edmonton

Susan Mayse and Sharon Adams

The Role Of The Residential Centres

They offer unique opportunities for environmental education.

ANDREW VAUGHAN

Residential centres offer unique environmental education opportunities. Most are located away from the urban environments most of us are familiar with, so they offer focussed exposure to new and often more natural settings. Many have expert staff available to guide new learning. And by providing the opportunity for people to live together for a few days and get to know each other better, they facilitate more meaningful social relationships.

Three of the centres described here--Ministik Hills, Camp Horizon and Yamnuska--see environmental education as a vital part of their work. The fourth, Blue Lake, emphasizes outdoor programs and sees environmental education as something of a spin-off. But it's a spin-off that's not to be disparaged.

Picture 30 exuberant school children romping across a grassy hillside, 30 butterfly nets swishing silver arcs through the sunshine around one harried teacher.

Pandemonium? Only until Dr. Lois Fenna, director of Ministik Hills field study centre, asks, "How many different insects can you find?"

The chase is on. Collecting bags start to squirm with captive life. There are hasty decisions. Enough ants, which way did that dragonfly head?

Between net and bag, more is happening than insect collection alone. Another class of Edmonton school children is taking a first outdoor step toward environmental education. Butterflies are different from ants, they discover. Instead of crawling, they soar. Instead of red or black, they're blue. Each has its own place in the ecosystem, just as we do.

Ministik Hills occupies its own unique niche in the system of outdoor study centres--it's the only one of its kind in Alberta for children. Classes from Edmonton-area schools visit steadily from May until late October, accompanied by a teacher, to put their theoretical lessons in biology, agriculture, geography and art into practical use. Grade 4 to Grade 12 students may take one of the centre's several one-day programs, or settle into the bunkhouses for an extended visit of a few days.

The programs, outlined to aid teachers and students choose a topic, sound like a full course in environmental education packed into a few days: the aspen parklands, life in a pond, insects, decomposition and recycling in nature, the farm, art, geography of the Cooking Lake moraine.

Ministik Hills field study centre, about 50 kilometres southeast of Edmonton, sprawls over 128 hectares of aspen bushland and cleared pasture, dotted with small ponds and marshes. It's also a working farm, operated by the Fennas and their children for the past seven years. Beef is the basis of their production, with 25 head of Hereford-Charolais cattle, three riding horses and a single milk cow. Rabbits haven't been strictly successful, since despite a reputation for active breeding, the Fennas' produced no offspring. The rolling land didn't seem especially good for farming when the Fennas arrived, and soil test results confirmed the suspicion: Ministik Hills soil is deficient in nearly every mineral needed to raise crops! It does grow forage crops to feed the cattle, and the Fennas are trying to improve the land with fertilizer and by planting alfalfa to improve soil nitrogen content.

Farming wasn't the only plan when the Drs. Fenna (Lois Fenna is a medical doctor, her husband Don is a computer scientist) moved to Ministik Hills. Dr. Lois Fenna practised medicine at first after the family arrived from Australia in 1968, then turned to a lifelong interest and completed her Master of Science in zoology at the University of Alberta, specializing in the flora and fauna of the province. A nature centre

ANDREW VAUGHAN

seemed much needed, and would surely be a project to attract grant money from at least one government agency.

Not so. Fenna visited office after office, hearing praise for her idea each time, but no funds were available to aid a private field study centre. Finally, she took her last $1,000 from the bank and set to work with only her family's help in restoring the old barn, building a new lab and bunkhouses.

"We built the laboratory just in time for the first class of children in June, 1973--with no glass in the windows, and a dirt floor. But it served the purpose."

Six years later the lab is finished, sometimes in ingenious ways--broken hockey stick handles hold the insulation in place, and among the microscopes are a few brass-bound antiques H.G. Wells could have used comfortably. The walls are thick with drawings and poems past students have donated, showing their keen observation and feeling for wildlife.

Every year Ministik Hills offers a few adult courses, perhaps in nature painting or wildflowers, or in winter the occasional cross-country ski weekend. The emphasis, though, is on nature study courses dealing with the interrelationship between soil, plants and animals. Environmental education is more than a single course selection at the centre; it's the groundwork for virtually every program. The philosophy of minimal impact--leaving no trace of your passing on the land--and thoughtful land use affect every decision at Ministik Hills, from locating the showers to planning a nature walk. Most important, it's all fun. Within a stone's throw of the bunkhouses, students can file past the chewed and felled trees around a beaver pond, learning how beavers tell one species from another and how they use trees for food and shelter. Then they tiptoe out on to a muddy mound surrounded by water, and look around puzzled at their guide's signal.

"You're standing on the roof of a beaver lodge," says Fenna. "Quiet now, or you'll wake them up."

Yamnuska centre offers four types of programs on its 440-hectare site 72 kilometres west of Calgary at the base of the easternmost Rockies on the TransCanada Highway.

The Y's Camp Chief Hector offers three-week summer and winter camping for students; the Rocky Mountain Y has a mountain school which teaches wilderness skills; Yamnuska co-operates with the school board on outdoor and environmental education for students in Grades 4 to 12; and the centre can be rented by groups for conferences, seminars and retreats.

Jan Crook, the schools and environmental programs co-ordinator, says environmental education is not a separate component of Yamnuska activities, but permeates every program.

"Environmental education and awareness is one of the objectives in all our programs," she says. "We think of environmental education as helping people become aware of their place in the natural system, understanding the natural or ecosystems and we hope that once they reach an understanding they should become responsible for their part in the natural system. We hope it will lead to responsible political and lifestyle decisions later."

Yamnuska, she says, has chosen a low-key approach, showing how man is part of nature. One student who visited the centre's solar project, Helios Habitat, was astounded to find telephones because he confused energy conservation with the back-to-nature movement. He gained a better understanding of the importance of man's ingenuity when told that telephones are useful devices for conserving energy since one telephone call can replace several energy-consuming trips.

Crook says the centre concentrates in its lessons on several ecological principles--energy flow, life cycles, diversity, community, change and adaptation.

Students begin their environmental education there by solving a problem through group co-operation--for instance, how to restore an animal's destroyed food supply. Students are encouraged to consider the problem and solution from all angles--particularly who or what will be affected by the solution.

"When considering the importance of community, they learn that different types of plants and animals need different habitats--and the same thing applies for man. They learn there are other citizens of earth out there who have the same needs we do--where to get water and food."

One of the ways students come to terms with basic needs and the means to fulfil them is by a stay in the centre's tepee village. The tepees sleep 10, are winterized with liners and wood stoves, and have a cookhouse located nearby.

The centre also has a number of more conventional dormitory clusters.

Yamnuska offers another unique environmental education experience--a taste of an energy-conserving future in Helios Habitat.

Helios Habitat comprises a number of alternate energy, alternate lifestyle proposals, including a solar-heated house (in which some staff members live), a solar food dryer and a passive solar greenhouse.

Yamnuska's program executive Gary Luthy explains that part of the reason we haven't yet developed an energy-conserving society is that the human race has traditionally feared change, and modern North Americans fear conserving energy will mean a drastic change in lifestyle.

De-mystifying alternate energy might help promote energy-conserving lifestyles among children exposed to it.

"Helios Habitat is an attempt...to give a bit of a taste of what things might be like," he says.

ANDREW VAUGHAN

Kinsmen Camp Horizon is owned by the Alberta Rehabilitation Council for the Disabled (ARCD) and run largely on donations from a number of charitable groups, chief among them the Kinsmen.

Located about 50 kilometres southwest of Calgary in the Bragg Creek region, the camp was established to give disabled people a chance to enjoy the outdoors. To balance the budget, the camp is also rented out to groups like the Calgary public school board.

ARCD south regional director Al Henderson explains environmental education for the handicapped is much different from that for people without disabilities. For many who have endured long periods of hospitalization or who have always lived in an institution, simple exposure to the outdoors is environmental education.

"Many of our clients come from a sterile, highly-programmed environment. Coming here exposes them to nature and freedom and a part of man's heritage they may not be familiar with. Some of the kids who come here, for instance, think food comes from the kitchen or a supermarket. They've never been told about what people in this part of the world had to know and do in order to live here, or how they (the handicapped) fit into the scheme of things."

The ARCD has attempted to take into account the limited exposure of most handicapped people to the environment. Medical difficulties abound since the clients include para- and quadraplegics, amputees, victims of polio, cerebral palsy, multiple sclerosis, muscular dystrophy, asthma, haemophilia and those with loss of hearing or sight.

An innovation this year was the pioneering program, in which campers were taken to a semi-permanent base-camp arrangement on the Camp Horizon site. During their stay they helped cook and shared other camp responsibilities, as well as going for walks and soaking up the outdoor experience.

Henderson says the camp hopes to add new features to give campers even more environmental understanding. Next year the camp will have a garden and farm animals so campers can learn about the food cycle and animal habits. In addition, a donation from McDonald's restaurants' McHappy Day campaign has been used to start a library which will be stocked with books about the environment, as well as recreational reading.

"I nearly didn't come to Blue Lake," said a woman delighting in her new skill as a cross-country skier. "I read the brochure and thought the programs were for experts, not for people like me."

The Alberta Blue Lake Centre, 21 kilometres north of Hinton, declares its purpose clearly: it offers programs in outdoor recreation leadership to adults. Created by the Alberta government and administered by Alberta Recreation and Parks, its courses stress "learning by doing" or experiential learning.

Hidden away in foothills spruce forest, the centre benefits from surrounding lakes, rivers and mountains. It's located within William Switzer Provincial Park, and is a brief drive from Jasper National Park. Accommodation for 64 people, a dining room, lecture rooms and workshops permit

STEVE HUME

large classes or several classes running at the same time. Most programs listed in the centre's calendar are recreational, rather than offering environmental education.

So why was the new skier hesitant? Probably because "outdoor recreation adult leadership" is easier to say than define. An adult is anyone over 18; that part's simple. But exactly what is leadership? Is leadership taking place only if the skier--or camper, hiker, nature student--goes home and teaches another 100 people? Or is the skier who goes home and teaches her three children also a leader?

Outdoor recreation also raises a few questions. Is it a straightforward matter of enjoying ourselves outside, or does it also mean responsibility for and appreciation of the complex ecosystem we inhabit along with numberless other creatures?

Both the on-site administrators at Blue Lake and the central staff members in Edmonton have been striving to find answers to these questions, and to pin down what the centre should really be offering, and to whom. At the same time, they're doing their best to ensure the programs stay sensitive to the needs of Alberta people.

Teachers, scout and guide leaders, and especially community recreation leaders or instructors are the prime target group for Blue Lake courses, says Duncan Daniels, unit head of provincial outdoor recreation.

"We want people not only to go through the experience, but also to learn to teach it to others."

This goal sets Blue Lake apart from many adult outdoor centres, including the worldwide Outward Bound program, which encourages anyone to take part for the main purpose of gaining wilderness experience and self-development. It also inevitably plays down the role of environmental education, since the emphasis is on recreation.

"We are running some nature interpretive programs, for example Tips and Techniques in Outdoor Studies," says Daniels. "Environmental education and outdoor recreation are often tied together. If you're out on a hike there's only so much you can do--then a group can pause to learn a little about its surroundings. We talk about minimum impact, and to do that we have to make sure people know something about it."

STEVE HUME

A few years ago, many outdoor centres offered courses in winter survival--how to stay alive in the wilderness when you're lost, or after an accident. Students would cut green branches for shelter, build fires in the snow, eat bark or shoots if necessary. It added up to considerable environmental damage--which few could criticize in a true emergency, but many questioned as a practice run. Now, the trend is toward programs having the least possible effect on the environment.

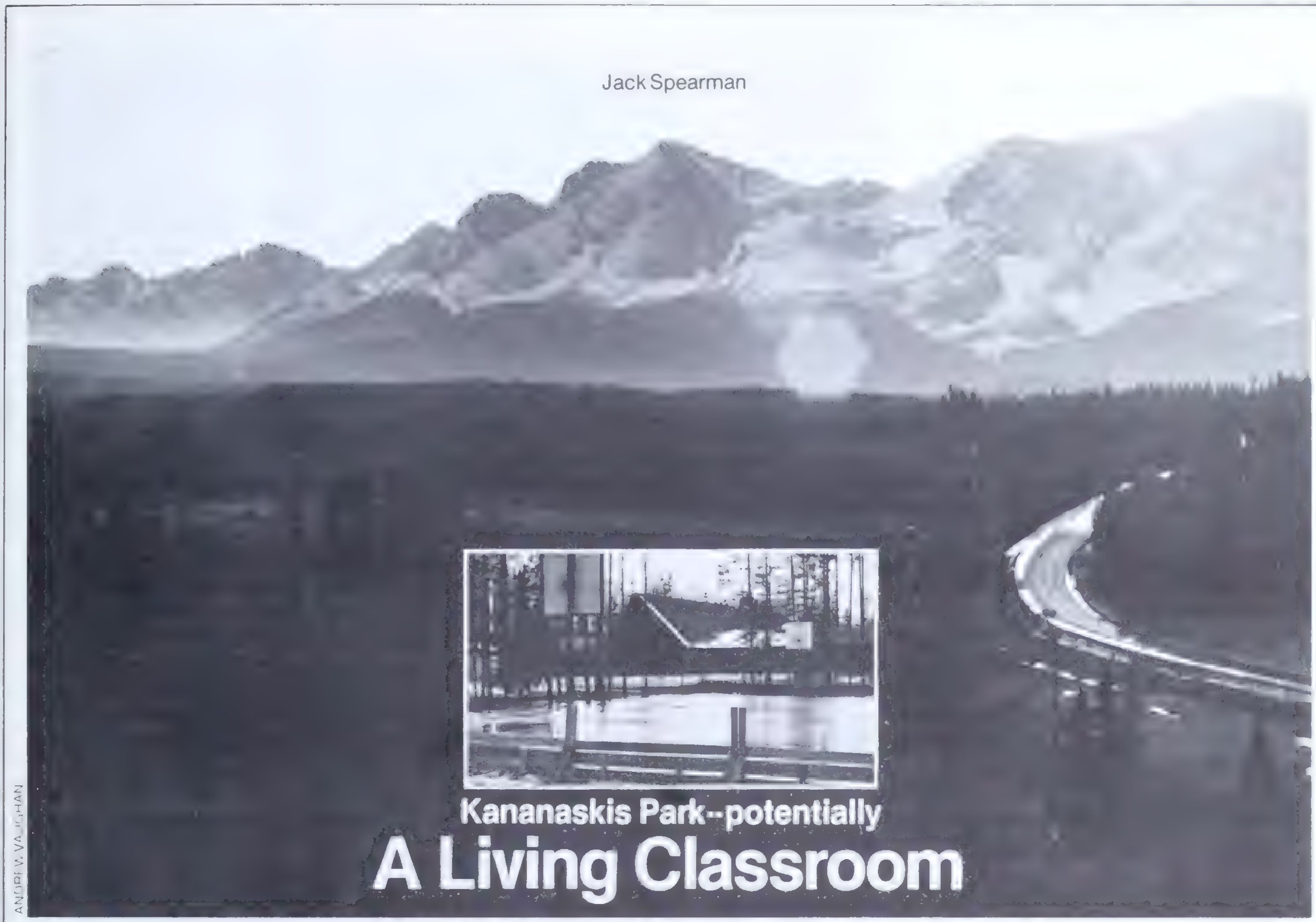
But in spite of that trend, Blue Lake Centre is still offering winter survival courses "recommended for experienced winter campers who wish to mentally and physically challenge themselves," the centre's calendar says.

Terry Whitely, the centre's director, says environmental education is not Blue Lake's first concern. "The first summer we stressed environmental education more than anything--and were disappointed. We tried to shape the demand and had our fingers burned."

Turnout for the nature interpretive program has usually been low enough to bring course cancellations and a change to more recreation courses.

"But anything we do out there is environmental. We like to make the ordinary person aware of what's happening--it's all interdependent, the flora and fauna."

Susan Mayse, who wrote about Ministik and Blue Lake, is a freelance writer living in Edmonton. Sharon Adams, who wrote about Camp Horizon and Yamnuska, is a journalist in Calgary



ANDREW VAUGHAN

Jack Spearman

Kananaskis Park--potentially

A Living Classroom

Kananaskis Park is just two years old and Alberta's newest mountain playground. It lies within an hour's drive west of Calgary and is just starting to be used. The park is only a small portion of Kananaskis Country and as both develop, there is a tremendous potential for them to become a huge, living classroom for the tens of thousands of students who live in Calgary and elsewhere in southern Alberta.

Special programs have also been set up for the thousands of tourists and recreationalists who use the Kananaskis.

A pilot environmental education program on Kananaskis Park will be operating next year in Canmore schools. Over the next five years, it is expected to expand greatly with the focal point being an environmental centre for students near Bragg Creek.

But while Kananaskis Park is a creation of government, anyone interested in environmental studies of the area won't get a glossed-over version of things from visitor services supervisor Joel Christensen or his staff.

"Government can do things wrong and believe me, we have made mistakes," said Christensen.

"Take things like clear-cutting over 5,000 feet. Every tree is just cleared out in a big patch because it's the most economical way. But we now know that there is no way trees are going to grow back naturally.

"There will be scars as big as the side of a mountain."

What is important is that people understand why certain decisions are made and as in virtually every environmental issue, it boils down to a question of trade-offs with political underpinnings.

Upper and Lower Kananaskis Lakes are beautifully set amid the mountains of the Spray Range. But they were created by hydro-electric dams.

The trade-off in this case is power for the natural setting.

"We try to present the sides as unbiased as possible," Christensen said. "It's up to them to decide if it's good or bad and that's an important thing with kids.

"We tell them these things in Grade 6. It'll only be another six years until that kid is old enought to vote and to do that, he'll need a knowledge base with analytical skills."

The Kananskis is a resource. "It's not a commodity we want to put on a shelf... We want to use it but not abuse it."

The pilot program in Canmore schools will start in kindergarten and last until Grade 12. Over the years, students will follow a spiral curriculum that will range from an understanding of the environment on their own block to an appreciation of the complex ecosystems of the foothills and mountains.

"In the early years, the emphasis is on awareness. Later, we shift to a knowledge

ANDREW VAUGHAN

base and finally after Grade 10, it'll be geared to how to become an agent of positive change, how to work within the existing political and industrial systems," said Christensen.

The Bragg Creek environmental centre is expected to cost $1.5 million and be open in 1982. It will be a general facility for all visitors but included in plans at this stage are four classrooms.

There, students will do everything from peer down microscopes at cross-sections of leaves to paint them in an art room.

"We expect that the Bragg Creek visitors' centre will get heavy use from just about everyone heading up the Bow Valley," said Christensen. "But the heaviest users will be the 100,000 students from the Calgary school system."

The centre will not have overnight facilities but there are campgrounds nearby. On the long-range planning board, however, is a proposal to build an overnight camp for junior high school students, complete with bunk houses, a central hall and some sort of cooking facilities.

"With those kinds of facilities, the kids can concentrate on learning, not just survival if they're outdoors in a lean-to," said Christensen. Hopefully, the junior high camp will also have room for parents to come along and enjoy with their youngsters intensive looks at environmental issues.

Like other parks in Alberta, Kananaskis has its share of nature trails, interpretive walks and slide shows of fauna. But the park also uses music and a touch of drama to instruct grown-ups in the lore of the area.

On Saturdays, campgrounds are apt to be visited by figures from the Kananaskis' past.

Park staff strum guitars, act out skits about the first white men in the valley and afterwards sit down with campers for a steaming mug of spruce tea to discuss the unique history and development of the region.

Just an easy walk from their tents or recreational vehicles, campers hear about the group of Red River settlers who came through the Kananskis Valley in the 1850s hoping to find a pass to Oregon. They are told of the hardships of the wilderness and according to Christensen, are soon engrossed in the tales of generations past.

"The idea behind this interpretive program is not just entertainment.

"People come to the park to enjoy themselves and the last thing we want to do is shove something down their throats. On the other hand, we do like to get some kind of information through in an entertaining manner and if we do, we've obtained our objective."

Puppet shows are also used and in the near future, the park hopes to start low-level radio broadcasts to further enhance people's knowledge of the Kananaskis as they drive through.

The programs in Kananaskis are all geared to the precise area. The park does not follow the lead of neighboring Banff National Park where naturalists cover environmental topics of world-wide interest.

Despite all the efforts of Christensen and his staff, the various programs can't keep up with demand. "We'll never be able to do that; there just isn't enough money. In the meantime, we do the best we can with what's available."

Jack Spearman is a journalist in Calgary

Maryhelen Vicars

Other Influences At Work

Our attitudes to environmental concerns are shaped by many messages.

Lovely out here in the fresh air isn't it honey?
FLY GO

Environmental education is all around us.

Some of the most effective teaching about the environment takes place far from classrooms or field trips as environmental issues are brought before the public every day via television, radio and magazines--in their advertising as well as stories.

Visiting a museum or nature centre or enrolling in a bird identification or hunter training class can bring children and adults into contact with important ideas about animals, nature and man's impact on his environment.

Most of what's learned outside the classroom about the environment increases public awareness and sensitivity about these issues, but other messages may have the opposite effect.

Advertising sometimes sells more than products: it can sell the idea that to be happy we need to buy more of this and that; we must use the latest chemicals to get our wash whiter than white; we must encase our garbage in super-strong (and non-biodegradable) plastic bags.

According to some advertisers, total comfort comes in an aerosol can. One squirt, and we're free of mosquitoes all day. Another, and the aroma of cabbage or the forest of germs under the sink will vanish.

That kind of advertising promotes what Jeff Winkelaar of STOP (Save Tomorrow Oppose Pollution) calls the "consumer ethic," which leads to waste.

He says he doesn't just mean the waste when last year's model breaks down and is thrown away--we often don't think of the energy that goes into producing the latest and most improved car or dishwasher.

While Jim Vincent, an Edmonton advertising executive, concedes that advertising can lead to overconsumption, he points out that ads can also promote environmental concerns.

As a direct example, Vincent points to an ad campaign of his own agency which encouraged people to use campsites wisely.

Using humor to sell the ideas, the campaign was aimed at getting people to cut back on noise pollution from loud radios, to protect the forests by being careful with fire and to improve the aesthetic environment by not scattering garbage.

Do such campaigns work?

"Yes," he says, but cautiously. "Advertising can make people aware a problem exists but asking people to change the way they enjoy themselves is harder than asking them to change their brand of soap. You're asking for a lifestyle change."

Advertising seldom leads the public to new ideas, Vincent says. Magazine or newspaper articles may raise issues but ads tend to reflect what the advertiser thinks the public will respond to.

Hence, the ad that works is for the product "whose time has come."

Vincent cites the example of the snowmobile, which was the right product for the "macho-crazed" '50s. Snowmobile ads emphasized the fun of the high-powered machines and they sold well for years.

But the public learned through other media, he says, that snowmobiles have a negative impact on the environment: they waste fuel, damage foliage and frighten animals. In the more environmentally-conscious '70s, they're harder to sell.

It could be argued that these environmental lessons are reinforced by the beer ads which at one time would have shown "the gang" having a beer after a snowmobiling session: now the gang having the same

LAUREN DALE

beer is more likely to have spent the afternoon hiking or skiing.

What are becoming easier to sell are programs tied to conservation, a philosophy which is in many ways in opposition to the "consumer ethic."

The John Jantzen nature centre in Edmonton aims to "develop awareness, appreciation and understanding of the environment of which man is very much a part," says its director, Cam Finlay.

He says 66,000 people will have visited the centre this year, which is a 50 per cent increase over last year's total. While many school groups visit the centre, about 36,000 people are just casual visitors.

In fact, Finlay says staff and space at the centre are being strained to their limits by this tremendous growth.

The nature centre's approach may be the key to its success. Finlay says all the programs, including school tours, involve participation, not lectures.

The "Touch-Me, Feel-Me" table is a display that changes with the seasons and offers a close look at what might be found outside at that time of year. Snakes and toads can be handled; bees in a hive behind a glass are much more approachable than they are outdoors.

"Nothing turns people on quicker than getting down on their hands and knees and getting involved," Finlay says.

STOP has a similar philosophy of encouraging people to become involved in the group's activities. Winkelaar says this is the best way for people to become really aware of the issues; "to get involved themselves in trying to change things."

Outdoors Unlittered has sponsored a spring clean-up campaign in Edmonton each April since 1973. Armed with free garbage bags emblazoned with the group's "Pitch In" logo, individuals and groups collect the winter's junk from ravines and roadways.

Each year Shell Oil donates more bags and each year the demand outstrips the supply.

Donna Berry, administrative assistant to the agency's director, says the growing response is because "people are becoming more aware of the problems of waste."

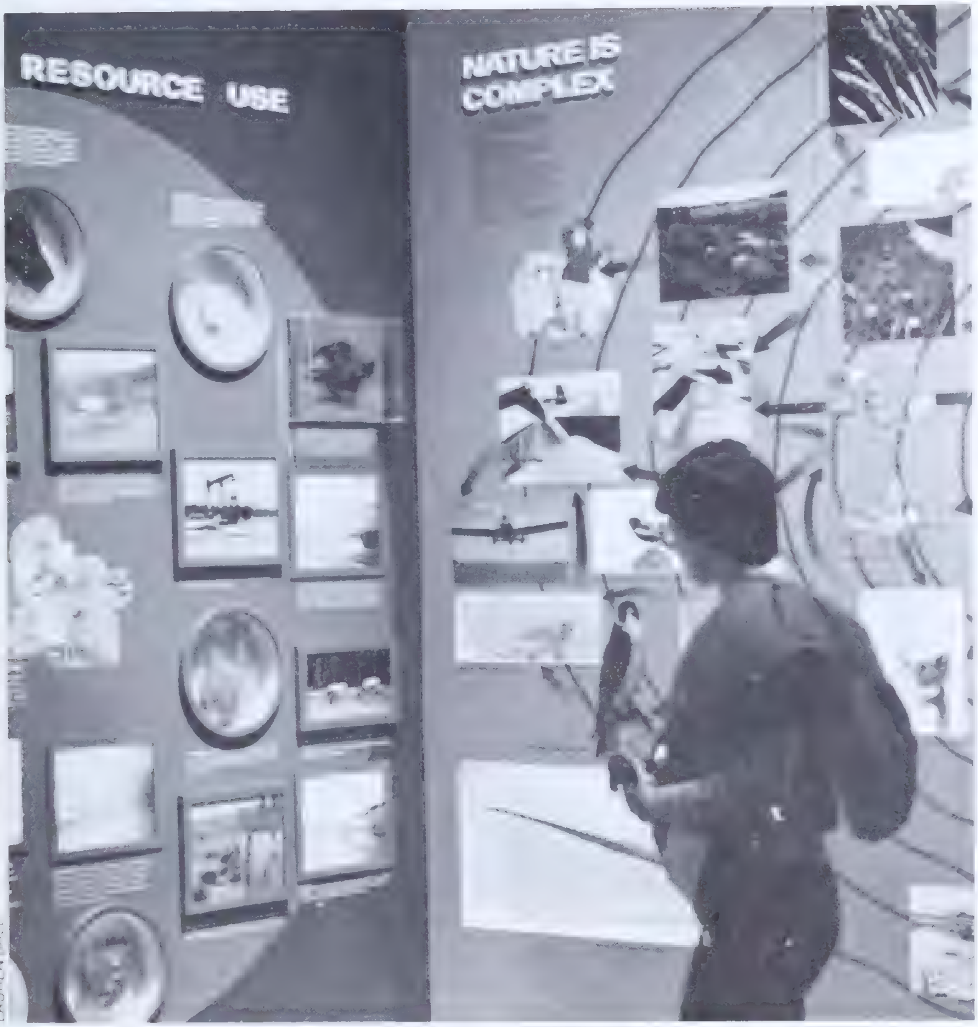
At the provincial museum the permanent conservation gallery, opened in 1975, has become one of the museum's most popular attractions. It deals with such issues as pollution and the threatened extinction of some Alberta species, and highlights the natural conservation areas of the province.

Museum curator Dave Spalding says the exhibit wouldn't have been built 15 years ago.

It reflects the increased interest the public and museum staff have taken in environmental issues over the past few years, he says.

John Jantzen nature centre (left).

Provincial museum's conservation gallery (below).



"Museums are very much a part of society."

Spalding says environmental educators have to be wary of "overkill" in trying to communicate the issues.

"People tend to get depressed at the sight of environmental problems and they turn off. They become overwhelmed at the scale of the problems and become discouraged from doing what they can in their own communities," he says.

It is important for agencies like museums and environmentalist groups to try to reach adults if they want action, Spalding believes.

"We can't wait until the kids who are in school now (who are receiving environmental education) come out and get environment-oriented jobs.

"Most people are out of the formal education system and get their information from other sources, like radio or television or magazines."

The role of the media in educating the public is an important one, but it's difficult to separate it from the work of the agencies they report on: it's a kind of chicken-and-egg situation, Spalding says.

An enlightened agency exposes particular issues, which leads to media coverage. The reading or television-watching public becomes more aware and encourages the efforts of the environmentalists.

"Look at newspapers," Spalding says. "There's been a tremendous change in subject matter (on environmental issues) because newspapers go where the news is."

For groups like STOP, using the news media is essential.

Winkelaar says the group gets concerns aired by the media directly by issuing press releases on specific subjects and indirectly by "just being involved."

"What would we do without it? It's the way to get the issues across to the general public."

While STOP encourages conservation practices by individuals, Winkelaar says the group is concerned with "broader political questions."

He's concerned about what he feels are ineffective anti-pollution laws in Alberta, which he says are tied to a philosophy that the province's energy resources must be developed "at almost any cost."

"The energy companies are educating the public to believe that we have to accept (high levels of) pollution to get energy."

He says STOP believes that by encouraging conservation and alternate energy sources, the need for developing the tar

LAURENT ALE

sands and heavy oil deposits would be much reduced, so this development could be postponed until effective environmental protection can be assured.

"This kind of thing just isn't promoted by government and by energy companies," he says.

The Great Canadian Oil Sands have used "loopholes" in the Clean Air Act and the Clean Water Act to evade conviction on pollution charges, Winkelaar says.

He says it is technically and economically feasible to set much more stringent anti-pollution standards, "but the Alberta government doesn't have the political will to force that."

Dr. Ron Woznow, product quality supervisor for Imperial Oil's Strathcona refinery, and an advisory board member of the industry-funded Society, Energy and Environment Development Studies foundation, says industry has become more environmentally conscious in the past few years.

"What we're seeing today is a real push to be more conserving within the energy industry," he says, as one example.

Part of the change he attributes to greater awareness of the issues by the public (including those making industrial decisions); part is due to the higher cost of energy, making conservation more economical.

Industry's role in environmental education has also changed. Shell Oil helps sponsor Outdoors Unlittered's clean-up campaigns; Imperial Oil is involved in the development of a curriculum package for schools on energy and the environment.

"In the 1960s all we heard from power companies was how to 'live better electrically'," Woznow says. Far from being involved in promoting conservation, industry aggressively pushed energy consumption.

"What's happened is that society as a whole is getting more aware. You can't separate the values held by the people in industry from the values held by the public. Industry is a collection of people."

The museum's Spalding says industry's participation in environmental education presents a potential conflict between industry's vested interests and the unbiased approach which would be ideal.

"Some environmental observers will criticize anything industry does because of this potential conflict, but nobody can be completely unbiased," he says.

Maryhelen Vicars is a journalist in Edmonton

Dan Stoker

Getting Started

All it takes
is a bit of encouragement,
and some old-fashioned
know-how.

The old-timers say it a lot: "Well, kid, when I was your age, we never..." Then comes the part about how tough it was in the old days when gramps was a kid and had to do without what seemed like everything...even TV.

Well, I never would have thought *I'd* be sounding like that, not at the ripe old age of 30-plus-a-few. But when I was a kid, we *really* didn't do a lot of things that school kids get a chance to do nowadays. I regret that we didn't.

We didn't go on field trips where I went to school. Teachers didn't take their students into the local park or even the schoolyard, for that matter. I don't even recall examining *real* things like toadstools, dandelions or decaying logs that could have been brought into our classroom. If anything, we read about those things in books.

I'm not saying that reading isn't important, but holding things in your hand...that's real. If you hold it in your hand, you can still read about it, but now you can write about it too. You might even write something absolutely new about it. There *must* be some value in that.

Despite my lack of formal instruction in things environmental, I learned anyway. I guess all kids do. After all, they like to muck around in dirt, burrow in leaves and crawl in long grass. You just can't help but learn something if it's so neat that your mother would give you heck for it, if you were caught.

I grew up in a big city. You'd have thought it wouldn't have been a good environment for discovering the ways of nature. But, for me at least, it was.

There was a corner lot on our block. It really wasn't big enough for a house back then, although there's one there now, I think. The builders and city fathers had overlooked that lot and left it to grow over with weeds and grass and become a home for grasshoppers, monarch butterflies, mongrel dogs and me.

So I learned on my own, without the guidance of a teacher. An occasional word of encouragement or an acknowledged interest in my discoveries by my parents or friends is what I thrived on...as well as the "finds" themselves.

Not every kid on the street spent as much time there as I did. Many never got started. Maybe they needed some guidance. Whatever the case, I think they missed out.

But kids don't have to miss out, not with all that built-in natural curiosity. I believe that it doesn't matter where a child lives or goes to school, there is *always* a "corner lot" or something, small or large, is waiting to be discovered in a hundred different ways. I also believe that older people can play an important role as "guides," to start children down their own paths of discovery.

Most discoveries happen when somebody wants to make them happen. A bit of encouragement and old-fashioned know-how could probably help most kids. But once started, once the first caterpillar spins a cocoon and turns into a butterfly, once the curiosity is aroused, well, just try and hold them back.

Parents, big sisters, big brothers, Brownie leaders, teachers, and grandparents, can be "guides." All you need is my patented "corner-lot bag-of-tricks." I came by these tricks the hard way, from years of trial and error. You get them free by reading closely the suggestions that follow. The real trick though, is to take this know-how and make the first discovery with the kid of your choice.

LAURENDALE

Mini-monsters

At a certain age, the presence of more than two or four legs, on something living and moving, is not all that horrible. In fact, it's downright interesting.

Discovering the fantastic varieties of "mini-monsters" that abound in corner lots, on playgrounds, under rose petals or deep in a pile of old leaves is a never-ending source of enjoyment for those that get started early enough.

Here are a couple of starters. Dig out that old magnifying glass. Save up some small plastic pill containers. Combine the two and examine "the ugliest little thing going" in the palm of your hand.

Tip number two – save a piece of white cloth from an old sheet or pillowcase. If a white cloth is placed under some branches (especially evergreen limbs close to the ground) and then the branches are jarred or shaken...look quick! The little critters that are jarred loose and tumble on to the cloth won't want to stay long. Those that can will shift into high gear and head for natural cover. Without a container or two to temporarily restrain a discovery, you'd have to wield a pretty fast magnifier.

Depending on the time of year (as long as it isn't winter), a wildlife safari with white sheet in hand, through the jungles of weeds, bushes, shrubs and tree branches, could yield a tremendous assortment of exotic beasts including caterpillars, aphids, tiny flies, spiders, beetles and just plain bugs. Common sense suggests that this technique should work on just about any vegetation, but best on not-so-windy days.

Soil Litter Sifters

Sometimes a gadget can hasten the rate of discoveries, much the way the compass assisted explorers in the past. The "soil litter sifter" is a modern-day, homemade gadget for exploring the miniature world of the soil litter. This is the layer of dead and decaying leaves and other bits of vegetation that covers the soil in certain areas. It is an active "world" with its own community of minibeasts.

A container such as a shoe box, a clean, dry milk carton or an empty plastic ice cream container will do. Take a pencil and poke 50 or 60 holes in one side or end and it's ready for action.

If you can find a place in your corner lot, backyard or school playground where leaf litter has naturally built up for a long period

LAUREN DALE

of time, you're in luck. Check around the base of shrubs or hedge plants, or even up against a corner of a building where grass clippings may have gathered. Use a spoon or your fingers to scoop down just into the soil beneath the litter, and put leaves, grass, soil and whatever into your sifter.

If you know how to sift flour through a sieve, then you know how to shake litter critters from a litter sifter. You'll still need the magnifier, the white sheet and some containers from your bag of tricks if you're going to ensure success. By vigorously agitating the contents, the tiny living things will fall through the holes on to the sheet while larger bits of vegetation will stay in the sifter.

These discoveries can even be made in the winter, though the soil litter will have to be brought in and thawed first.

Bigger Beasts

Of all the bigger beasts that frequent the modified environments of people, only birds offer any really dependable presence and even they don't always oblige by sitting close enough or long enough for a kid to do some identifying.

The best, although certainly not foolproof, way to initiate an interest in birds might be to provide a local area bird identification book that can be marked up. Unless each new bird identified can be recorded for posterity in the book, motivation may be difficult to maintain.

Wet Watery Worlds

Water has a special attraction for children, especially those with white shoes and socks who are told not to walk in puddles. Water can also represent a really interesting environment for other living things.

More than in the previous examples of activities for children, caution here concerning the types of sites that children can visit is in order; unsupervised excursions to river shores or unsafe sites are not suggested.

What are possible, though, are some supervised adventures in appropriately small natural pools, ponds, or marshy areas with some common household items in hand. You'll need a kitchen sieve and preferably some sort of large white plastic trays, pails or containers to collect your finds.

The kitchen sieve acts as a net of sorts to capture the myriads of things that scoot about amongst the shoreline aquatic plants. You have to work fast and right in amongst the underwater plants to scoop out the miniature water wildlife that abound. Once captured, the white plastic tray, half-filled with marsh water, represents a temporary holding tank.

Unfortunately, some urban areas are no longer suitable for water studies of this sort. Our attempts to pesticide-out-of-existence the urban mosquito have killed off almost every other aquatic animal as well.

Some teachers have hit on an idea that's worth copying. They bring large buckets full of weekend-collected, rural marsh water into their classrooms for in-class field trips. After examining the samples, a selection of organisms is made to be kept in an aquarium, with the others destined to be returned to a natural site. An aquarium with aquatic plants, placed on a window ledge to get suitable exposure to sunlight, can represent an indoor pond. Any child can have his own pond.

These are just a few ideas as starters to assist that "kid of your choice." Even without these ideas, any parent or friend can do what mine did for me a long time ago and that is to show interest, to give encouragement, maybe even to say "wow" when you feel a discovery coming on.

Dan Stoker is a specialist in environmental education, and former environmental education co-ordinator for Alberta Environment.

Dan Stoker

Teacher Attitudes

A Manitoba survey finds a positive response to environmental education.

1. Are teachers concerned about environmental issues? Do they regard environmental education as a high-priority educational objective? How actively are they promoting out-of-school environmental activities? These are good questions, worth asking of Alberta teachers, and for that matter, teachers across Canada.

They *were* asked in one of the few systematic opinion surveys on teachers with regard to environmental education, in Manitoba in 1974. And they helped uncover some pretty revealing attitudes.

Under the direction of Harry Cunningham of the provincial renewable resources and transportation services department, 866 teachers replied to a questionnaire circulated to 63 elementary and secondary schools throughout Manitoba. The survey was thorough; more than 70 questions and comments required replies. It was professional; binary punch cards were employed which allowed only a "yes" or "no" response--there was no place for "maybes" or "no opinions."

The Manitoba findings have been published in a document entitled "Teacher Attitudes to Environmental Education." The data is not Albertan, but the likelihood that the attitudes revealed are dramatically different from those elsewhere in Canada seems unlikely. For no other reason than to get teachers and the general public thinking about their attitudes with respect to environmental education, the Manitoba data warrant scrutiny.

A brief explanation is required to make sense out of the graphs used to tally the questionnaire responses. The graphs used are called histograms. On the left side of the histogram, various letters are listed. These letters represent categories of teachers. For instance, "S" stands for Science teachers, and "L" stands for Literature and Language Arts teachers.

Across the top of the histogram are numbers that represent percentages. For every question or statement in the survey, the percentage of responses that were "yes" were calculated for each teacher category. A bar drawn horizontally across the graph gives an instant reading of the percentage of "yes" responses.

Of special note is the top entry on the histogram which is coded "C" for "Combined Survey Score." This is the percentage of "yes" responses from all 866 replies. (Spoiled or unmarked responses were not included in the calculations.)

3. Although the report went on to illustrate graphed results for most of the 72 survey items, it is enough to note a few of the "Combined Survey Scores" (for all 866 respondents).

Concerning funding, only 13 per cent felt there would be adequate funds available to promote a program in their school and 75 per cent favored making funds available. Less than 10 per cent felt such programs are too costly.

When asked to select the philosophical statement most basic to an environmental course, roughly two-thirds of the respondents selected the statement, "Living things are interdependent with one another, and with their environment." The fact is that the teachers were remarkably "in tune" with what might be called a contemporary ecological philosophy concerning the environment. Other possible ways of thinking, such as a hands-off, protectionist/preservationist philosophy, or a technology-will-solve-all philosophy, were not supported.

A number of other survey items *did not* get support. In fact, most, or all of the teachers rejected certain statements:

"I have no interest in it (environmental education) at all." (98 per cent disagreed.)

"It's a passing fad that the school system can't afford to cater to." (100 per cent disagreed.)

"It's much too controversial to discuss in the classroom." (100 per cent disagreed.)

"Environmental ills will be solved primarily by technology." (100 per cent disagreed.)

"If man would just leave nature alone, all would be well." (97 per cent disagreed.)

"The curriculum is too rigid to allow it (environmental education)." (94 per cent disagreed.)

"There is significant parental opposition to such 'non-traditional' teaching programs." (97 per cent disagreed.)

As with many surveys, it is sometimes the non-computable, scribbled notes along the edge of the page or on the back of the computer card that turn out to be just as revealing as the processed data. In this survey, respondents were asked to comment, and as a result many did, as follows:

"Many schools use lack of funds as an excuse to do little if nothing."

"Are we not too late?"

"While environmental studies is a worthwhile venture, the moment it moves from an optional freely chosen subject to something which must be taught and learned, it loses much of its value."

Some teachers wrote of the rigidity of the school system when it comes to doing "something really extraordinary or creative." Others warned against "stuffing the curriculum with it." Still others voiced a need to "gear ourselves towards action."

The report went on to make special mention of the "magnitude of support for the notion that environmental education ought to be a fundamental curriculum objective."

If these results are typical of teachers elsewhere in Canada, one would expect a similar degree of support in Alberta. Maybe the survey should be repeated here to find out if attitudes vary across provincial boundary lines. Who knows, maybe the support here is even greater than in Manitoba.

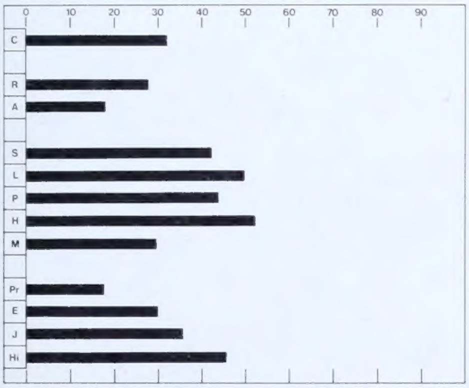
2.

Histogram Legend

Sub-category	
C	Combined survey score
R	Rural teachers
A	Teachers teaching all subjects
S	Science teachers
L	Literature and Language teachers
P	Physical Education teachers
H	History and Geography teachers
M	Mathematics teachers
Pr	Primary grade level K-3
E	Elementary grade level 4-6
J	Jr. High level 7-9
Hi	High school level 10-12

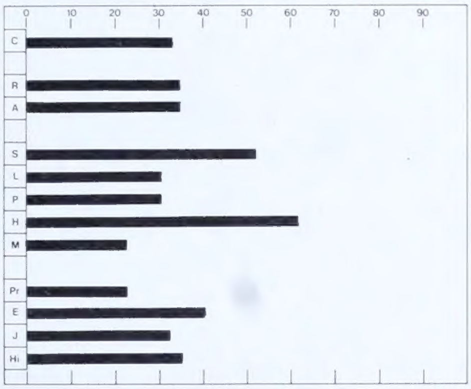
The questions or statements posed are written above each set of response data and a brief interpretation of the results follows. Since the graphs signify "yes" responses, the longer the solid line or bar the greater the support for the statement. Differences in the length of the lines indicate differences in the degree of support by teachers in different grade levels. These differences indicate differences in attitudes within the teaching profession.

Are you aware of any student desire to have environmental education included in the school curriculum?



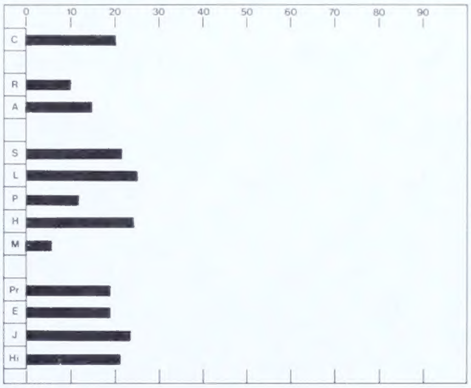
The results for this question reveal that about 32 per cent of the teachers surveyed were aware of student wishes to have environmental education in the school curriculum. This demand turned out to be particularly high in the secondary schools.

I often discuss major environmental issues with my students.



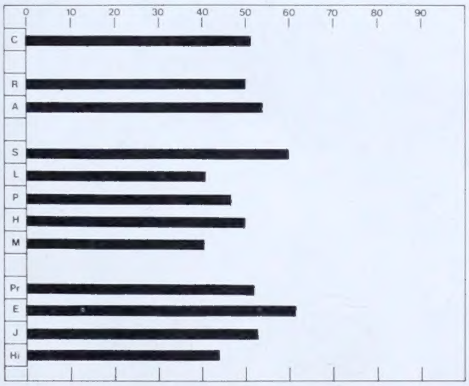
Major environmental issues are discussed far less often in primary grades than at upper elementary, junior and high school levels. Interestingly enough, history and geography teachers (social studies in Alberta), not science teachers, discussed major issues most often.

Are you conscious of any public pressure on the school system to deal more significantly with environmental education?



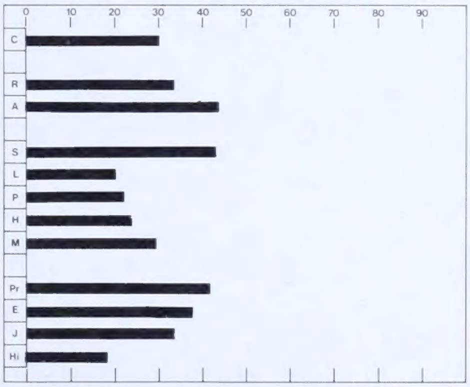
These results indicate that 80 per cent of the teachers were not conscious of any public pressure of this kind. Rural teachers as a group seemed to be even less pressured by the public, and therefore parents, to deal more significantly with environmental education.

Should environmental education be a compulsory course in teacher training institutions)?



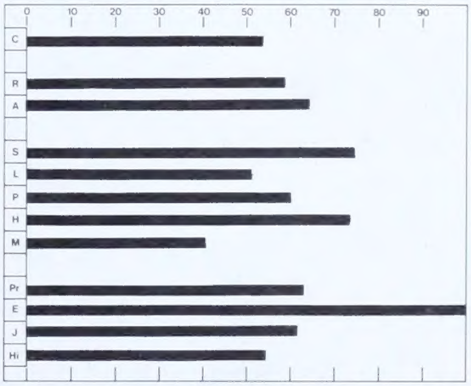
One of the survey questions revealed that only four per cent of the teachers felt adequately trained in environmental education methods and philosophies, so it is understandable that many teachers might opt for more training. The fact that 52 per cent would favor a compulsory course is remarkable.

Have you ever conducted an outdoor environmental educational program, however modest?



Fewer than one-third of the surveyed teachers had conducted outdoor environmental education programs but more than 40 per cent of teachers teaching all subjects and science teachers have. Of real significance is the trend away from using the outdoor experience, from the primary grades through to the high school level.

Would you make use of a government-supported, staffed nature interpretive centre if such a facility existed?



Upper elementary teachers led all other teachers categories in their strong support for interpretive centres of this kind. The fact that many of the field centres in North America aim their programs at upper elementary students reflects this interest.

If undelivered, return to:

Environment Views
Alberta Environment
9820 - 106 Street
Edmonton, Alberta T5K 2J6

Environment Update

Water Transfer Under Review

A water advisory committee will report to cabinet by next summer on ways to shift water from the north to the south of the province.

Transport minister Henry Kroeger told a November water resources conference sponsored by the Alberta Chamber of Commerce and the Canadian Water Resources Association that the government would be prepared to consider a plan of interbasin transfer of water if the committee suggested it.

Lake Study Planned

Alberta Environment will launch next February a two-and-a-half-year study into weed growth problems in Lake Wabamun.

The study, triggered by the concerns of the Lake Wabamun Preservation Association, will examine cottages, local streams and other sources of nutrients in the lake, in order to find a solution to the weed problems.

Department officials hope to work closely with the public in an information exchange during the project.

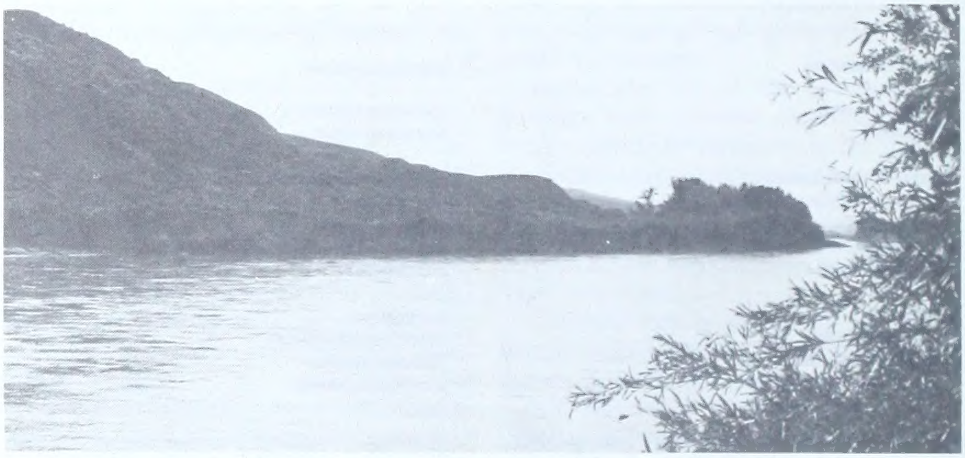
Group Gets New Leader

The Environment Council of Alberta public advisory committee's study group on pollution has a new chairperson.

Martha Kostuch is a veterinarian from Rocky Mountain House. She is also president of the town's Chamber of Commerce.

Electricity-For-Export Plant Proposed

Plans are under way for the construction of Canada's first coal-fired generating plant designed for electricity exports.



Fording Coal Limited has initiated the project. Fording vice-president R. Brady says early studies have shown a big market for electricity in the Pacific northwest of the United States.

Potential mine sites--including Fording's reserves near Brooks, Red Deer and Lethbridge--are now being considered.

Energy Theme For Magazine

The Alberta Teachers' Association magazine's special theme for January is Energy and Education.

Magazine editor T.W. McConaghy says the purpose of the issue is to examine the role of schools, teachers and curriculum in the whole field of energy, and to make teachers and education officials aware of the issues and the need for energy education in schools.

Symposium Scheduled

The Alberta Society of Professional Biologists and Alberta Environment will co-sponsor in Edmonton next April a symposium on environmental management strategies past, present and future.

The symposium will critically examine the conception and birth of environmental legislation and the evolution of current environmental management policies, and will provide suggestions for future environmental management strategies. Speakers from universities, private industry and government will be featured.

No Hearings On Forest Damage

The Alberta government has rejected an Environment Council of Alberta (ECA) proposal for public hearings into forest damage by oil and gas companies.

Environment minister Jack Cookson told the legislature that damage from the industry's exploration activities is not as great as described in a report by an ECA panel earlier this year.

Cookson said the government is also working with the industry to ensure everything possible is done to reduce environmental damage in the forests.

If you have a short news item of province-wide interest you'd like to contribute to Environment Update, please send it to the editor at the address on the Contents page. The editor reserves the right to select and edit the items.